

Listing of Claims:

1. (Currently Amended) A method for controlling a hydraulic pump for a working machine of a working vehicle having a cylinder ~~(60)~~ for operating the working machine ~~(10)~~ and the hydraulic pump ~~(26)~~ for supplying predetermined pressure oil to said cylinder ~~(60)~~, comprising ~~the steps of:~~

measuring a duration time of a state in which a hydraulic pressure in a bottom side ~~(13A)~~ of at least one cylinder ~~(13)~~ of said cylinder ~~(60)~~ is at a predetermined value or less;

determining that an excavating operation starts when a predetermined duration time elapses and thereafter, the hydraulic pressure in said bottom side ~~(13A)~~ exceeds the predetermined value;

setting a displacement of said hydraulic pump ~~(26)~~ at a predetermined displacement reduced to be smaller than a maximum displacement; and

performing ~~a~~ control to reduce the displacement of said hydraulic pump ~~(26)~~ to the predetermined displacement.

2. (Currently Amended) The method for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 1, further comprising ~~the steps of:~~

determining that the excavating operation is finished when a

forward and reverse travel operating ~~means (30)~~ unit of said working vehicle ~~(1)~~ is switched to a neutral or reverse travel position from a forward travel position, on performing ~~a control by reducing the control to reduce~~ the displacement to the predetermined displacement; and

stopping the control to reduce the displacement of said hydraulic pump ~~(26)~~ to the predetermined displacement.

3. (Currently Amended) The method for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 1, further comprising ~~the steps of:~~

determining that the excavating operation is finished when the hydraulic pressure in said bottom side ~~(13A)~~ becomes ~~a~~ the predetermined value or less within a first set time previously set from the time of determining the start of the excavation operation, on performing ~~a control by reducing the control to~~ reduce the displacement to the predetermined displacement; and

stopping the control to reduce the displacement of said hydraulic pump ~~(26)~~ to the predetermined displacement.

4. (Currently Amended) The method for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 1, further comprising ~~the steps of:~~

determining that the excavating operation is finished when

the hydraulic pressure in said bottom side ~~(13A)~~ becomes ~~a~~ the predetermined value or less, and a hydraulic pressure state of the predetermined value or less continues for more than a second set time previously set from the time of determining the start of the excavating operation, on performing ~~a control by reducing~~ the control to reduce the displacement to the predetermined displacement; and

stopping the control to reduce the displacement of said hydraulic pump ~~(26)~~ to the predetermined displacement.

5. (Currently Amended) The method for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 1, further comprising ~~the steps of:~~

determining that the excavating operation is finished when a height of a bucket ~~(12)~~ of said working machine ~~(10)~~ becomes a predetermined value or more, on performing ~~a control by reducing~~ the control to reduce the displacement to the predetermined displacement; and

stopping the control to reduce the displacement of said hydraulic pump ~~(26)~~ to the predetermined displacement.

6. (Currently Amended) An apparatus for controlling a hydraulic pump for a working machine of a working vehicle having a cylinder ~~(60)~~ for operating a working machine ~~(10)~~ and a

variable displacement hydraulic pump ~~(26)~~ for supplying predetermined pressure oil to said cylinder ~~(60)~~, comprising:

a bottom pressure detector ~~(45)~~ for detecting a hydraulic pressure in a bottom side ~~(13A)~~ of at least one cylinder ~~(13)~~ of said cylinder ~~(60)~~;

a displacement control device ~~(41)~~ for controlling a displacement of said variable displacement hydraulic pump ~~(26)~~; and

a controller ~~(50)~~ which inputs a detection value from said bottom pressure detector ~~(45)~~ therein, determines that an excavating operation starts when a predetermined time elapses with said detection value at a predetermined value or less and thereafter, said detection value exceeds the predetermined value, and outputs a displacement control signal for reducing the displacement of said variable displacement hydraulic pump ~~(26)~~ to a predetermined displacement that is smaller than a maximum displacement to said displacement control device ~~(41)~~.

7. (Currently Amended) The apparatus for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 6,

wherein said controller ~~(50)~~ inputs therein a detection signal from an operation position detecting ~~means (31)~~ unit for detecting an operation position of a forward and reverse travel

operating ~~means (30) provided at~~ unit of said working vehicle ~~(1)~~, and stops transmission of said displacement control signal to said displacement control device ~~(41)~~ when the operation position is switched to a neutral or reverse travel position from a forward travel position.

8. (Currently Amended) The apparatus for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 6,

wherein said controller ~~(50)~~ determines that the excavating operation is finished when said detection value from said bottom pressure detector ~~(45)~~ becomes the predetermined value or less within a first set time previously set, after determining that the excavation operation starts, and stops transmission of said displacement control signal to said displacement control device ~~(41)~~.

9. (Currently Amended) The apparatus for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 6,

wherein said controller ~~(50)~~ determines that the excavating operation is finished when said detection value from said bottom pressure detector ~~(45)~~ becomes the predetermined value or less, after determining that the excavation operation starts, and a

state at the predetermined value or less continues for more than a second set time previously set, and stops transmission of said displacement control signal to said displacement control device ~~(41)~~.

10. (Currently Amended) The apparatus for controlling the hydraulic pump for the working machine of the working vehicle according to Claim 6, further comprising:

a bucket height detector ~~(32)~~ for detecting a height of a bucket ~~(12)~~ of said working machine ~~(10)~~,

wherein said controller ~~(50)~~ inputs therein said bucket height from said bucket height detector ~~(32)~~ after determining that the excavation operation starts, and determines that the excavating operation is finished when said bucket height becomes a predetermined value or more, and stops transmission of said displacement control signal to said displacement control device ~~(41)~~.

11. (Currently Amended) An apparatus for controlling a hydraulic pump for a working machine of a working vehicle having a cylinder ~~(60)~~ for operating the working machine ~~(10)~~, a variable displacement hydraulic pump ~~(26B)~~ for supplying predetermined pressure oil to said cylinder ~~(60)~~, a control valve ~~(44B)~~ for controlling a flow rate of pressure oil supplied to

predetermined cylinders ~~(13, 13)~~ in said cylinder ~~(60)~~ and a working machine operating lever ~~(55)~~, comprising:

a bottom pressure detector ~~(45)~~ for detecting a hydraulic pressure in a bottom side ~~(13A)~~ of at least one cylinder ~~(13)~~ of said predetermined cylinders ~~(13, 13)~~;

a displacement control device ~~(41B)~~ for controlling a displacement of said variable displacement hydraulic pump ~~(26B)~~ so that a load sensing differential pressure that is differential pressure of a load pressure of said predetermined cylinders ~~(13, 13)~~ and a discharge pressure of said variable displacement hydraulic pump ~~(26B)~~ becomes constant; and

a controller ~~(50B)~~ which inputs therein a detection value from said bottom pressure detector ~~(45)~~, determines that an excavating operation starts when a predetermined time elapses with said detection value at a predetermined value or less and thereafter, said detection value exceeds a predetermined value, and reduces a stroke of said control valve ~~(44B)~~ for a maximum stroke of said working machine operating lever ~~(55)~~ to be a smaller predetermined stroke than a maximum stroke.